

## ABSTRACT OF THE DISCLOSURE

An improved microwave unit and tissue processor system incorporating the unit are provided for use in rapid tissue processing. The microwave unit may be comprised of  
5 an energy source, a waveguide transmitting the microwave energy to a reaction chamber, and the reaction chamber being adapted to process tissue specimens for histology. The unit provides gentle and uniform heating, with minimal heat loss and escape of volatile chemicals. The system may be operated continuously and/or batchwise, by manual operation or automatically. The automated system may be operated with continuous throughput  
10 to obtain the advantages of the invention such as, for example, rapid processing under two hours and/or preservation of cell structure and tissue architecture.